Remarks of
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"Satellite Heights: Highlights of FCC Policy and Industry Innovation"

Introduction

Good afternoon, ladies and gentlemen. My thanks to Andrea Maleter for inviting me to this Washington Space Business Roundtable and to Patricia Cooper for the introduction.

Given our role in the commercial satellite arena, we from the FCC are very pleased to be here among this distinguished audience with wide-ranging representatives from various parts of the space industry – including commercial, defense, manufacturing, launch, education, regulatory, and even a few lawyers.

Historically, the Commission's satellite policies were designed to foster competition in the satellite industry. That competition has led to greater investment and innovation, and has helped the U.S. satellite industry to become a critical component of the communications infrastructure, and to achieve a leadership position in the world.

Currently, at the FCC, we are ensuring that our policies promote competition and innovation. We intend to continue to adjust and modernize these policies to ensure a dynamic future for the satellite industry. Our actions will build on the healthy dynamic between government and industry, as well as healthy competitive forces in the global satellite industry.

The satellite industry has grown based on many visionary pioneers, courageous individual entrepreneurs, and entities willing to make extraordinary financial investments and to take risks. For example, in 1919, Robert H. Goddard, known as the father of modern rocketry, published a monologue titled "A Method of Attaining Extreme Altitude." Now I can't admit to reading it, and the highest altitude I've experienced is in an airplane, but I understand that the paper set forth the foundation of U.S. rocket development and suggested that a rocket could go to the moon. Dr. Goddard was criticized and, worse, was ridiculed and laughed at. However, he certainly had the last laugh as reality proved Dr. Goddard to be correct. Now a renowned space center – with over 10,000 scientists and U.S. government employees and contractors – bears his name in recognition of his innovations.

Almost 50 years later, on December 19, 1958, an orbiting satellite broadcast the first communication from space – and it was from a government official – President Eisenhower. Since then satellites have been important infrastructure for delivering messages from Presidents and government officials worldwide. That same year, the first solar-powered satellite, which was only six inches in diameter and weighed just 2.4 pounds, called Vanguard I, was launched. The solar cells operated for more than six years, while conventional batteries at that time lasted only 20 days. Today, solar panels are routinely built into satellites and now into our own homes.

A multitude of people, governments and entities with determination and commitment have worked to take the space and satellite world to new heights. And those of us on earth are the beneficiaries.

The Commission's Record of Promoting Competition and Spectrum Policies

While it might sound bureaucratic and boring, I think there's value in mentioning a few of the key regulatory actions in the satellite arena. This is particularly true not only because these policies helped get the industry to where it is, but also because they remain the policies of today's FCC, and are part of Chairman Genachowski's vision for a global communications world with universal connectivity. So just a few highlights of our pro-competition policies:

We can start with the *Communications Satellite Act of 1962*, which established the first commercial communications satellite system and a private U.S. company – Comsat – to participate in this multinational satellite system, which was the original Intelsat.

Recently I had the pleasure to meet Newt Minow who was the FCC Chairman in the Kennedy administration. He is most famous for calling television a "vast wasteland" for the viewer – later popularized in my generation by a song by The Who and as the good ship SS Minow on Gilligan's Island. He recounted being approached by an FCC commissioner on the first day on the job who asked if he knew anything about satellite communications. Chairman Minow said he didn't, but recognizing their potential importance, he promised the other Commissioner that he would learn about satellites.

And learn he did – as he had to testify numerous times to a much divided Congress. He figured it out and worked hard to get the new law passed. He even told President Kennedy that putting communications satellites into space was more important than putting a man in space, because satellites would send ideas into space and ideas last longer than men. Think about that – ideas in space – every one of us can appreciate both the power of communicating ideas and the technological feat of transmissions from earth to outer space.

Let's jump 10 years later to the *Open Skies Policy* in 1972, when the Commission first authorized commercial domestic satellites – which was not the worldwide trend at the time as other countries were licensing nationally-owned systems.

Then, in the early 1980s, because the Geosynchronous Orbit (GSO) had started to become crowded, the Commission adopted rules that enabled more GSO satellites to be placed in orbit. Specifically, we adopted technical rules that would allow satellites spaced two degrees apart to operate without causing harmful interference, rather than three or four degrees as was done previously. This allowed greater opportunity for more satellite companies to provide service to the United States.

Then came the *Separate Systems Order* in 1985. This was a big deal because the Commission implemented policies and procedures to allow satellite systems separate from Intelsat to provide international satellite communications services. By 1992, the U.S. government realized that the separate systems policy needed to be further liberalized and the FCC issued the *Separate Satellite Systems Modification Order*. The Commission relaxed some of the restrictions previously placed on separate systems that were designed to protect the fiscal integrity of Intelsat, and set a goal of eliminating other restrictions by 1997.

In 1996, realizing that having different regulatory frameworks that distinguished between international separate system and domestic satellites was impeding the development of the

industry, the Commission adopted the *DISCO I* (*Domestic International Satellite Consolidation Order*) decision. *DISCO I* allowed all U.S. licensed satellite systems to provide whatever mix of international and domestic services that the system operators chose to provide.

In the *DISCO II* decision – at the end of 1997 – the Commission implemented U.S. commitments to the World Trade Organization to allow non-U.S. satellite operators to enter the U.S. market. The follow-on *Permitted List Order* (1999) streamlined the procedure for foreign satellite operators of C-band and Ku-band satellites seeking to enter the U.S. market, by adding foreign satellites to the list of satellites that can be accessed by routine earth stations without additional regulatory approval. And just this year, we issued the *Ka-band Permitted List Order* that expanded the reforms of the *Permitted List Order* to Ka-band satellites as well.

In 1999, INTELSAT privatized and transitioned from an international organization to a satellite operator with the same status as any other licensee.

And most recently – just two weeks ago, we issued the *Harbinger Order*. We granted a transfer of control application, finding that it was unlikely that any anti-competitive harm would result from the transaction. We also found that the potential for anti-competitive harm was outweighed by the public interest benefits of Harbinger's planned wholesale 4G wireless broadband network.

At the FCC, we have also created new spectrum opportunities for the satellite industry that have made a difference.

New Service Rules: We adopted new service rules in new frequency bands that allowed satellite operators to expand service, and created new opportunities for entry (Ka-band (1997); 2 GHz (2002); 17 GHz (2007)).

Streamlining of Authorization Procedures: Over the years, the Commission has streamlined its procedures for issuing space station and earth station licenses, to help ensure that the licensing requirement is not an unreasonable barrier to entry. (Earth Station Procedures in 1991, 1996, 2005, and 2008; Space Station Procedures in 1991, 1996, and 2003). The 2003 amendments were particularly important as they dramatically changed the way in which we consider space station applications – by implementing a first-come first-served licensing procedure instead of lengthy and complicated processing rounds.

In 2003, we allowed satellite operators to use the *Ancillary Terrestrial Component* (ATC) to strengthen transmissions in "urban canyons," to improve their quality of service, and to strengthen their competitive positions.

The Commission's policies to promote competition have helped the U.S. satellite industry achieve a world leadership position and become a major component of communications infrastructure, and will continue to do so in the future. There has been tremendous growth in the satellite communications industry in recent years. Worldwide communications satellite service revenues grew from $46.9 billion to $84.0 billion from 2004 to 2008.

Industry Innovation

We are seeing the emergence of a new communications and information infrastructure that has the potential to advance the economic and social well-being of all countries and all people. Satellite technology is expanding to allow broadband Internet access to be provided to vehicles in motion, such as ships, trucks, and airplanes. Satellite technology is being used

increasingly to provide medical services to remote areas, such as Northern Canada and offshore oil platforms in the Gulf of Mexico.

And there are many other examples where FCC policies have helped spur innovation in the space/satellite industry. For example:

Broadband by Satellites. Hughes and WildBlue now offer satellite-based broadband Internet access services. Hughes offers download speeds ranging from 1 to 5 Mbps; and had over 500,000 subscribers as of end of 2009. WildBlue offers download speeds up to 1.5 Mbps; 400,000 subscribers as of August 2009.

Innovative Use of Spectrum. Several satellite operators have been licensed to operate satellites that will provide advanced video and audio services in the 17/24 GHz BSS bands (also known as the reverse band). These include: Pegasus (115° W.L.); EchoStar (62.15° W.L., 75° W.L., 79° W.L., 107° W.L., and 110.4° W.L.); DIRECTV (99.175° W.L., 102.825° W.L., and 110.9° W.L.). All these satellites are scheduled to be launched by July 2014 or earlier. Permitting these systems to use this band was an innovative approach because it allowed both Direct Broadcast Service (DBS) and the reverse band Broadcast Satellite Service (BSS) systems to use the same band in different transmission directions.

Satellites for National Defense and Security. As everyone in this room knows, satellites are key to our national defense and security. And in addition to government satellites, our military relies heavily on commercial satellites.

Shortly after I started at the FCC last fall, I joined Chairman Genachowski on a visit to a foreign U.S. military base. The Chairman's goal was to better understand the complexities and challenges of military communications, and explore ways the FCC can support the mission of our military. In particular, we discussed the Commission's role in supporting the military's communications efforts – for example, with respect to commercial communications facilities used by the military.

Later, at our IB "Global Broadband Workshop," Mr. David Mihelcic, Chief Technology Officer, Defense Information Systems Agency, gave a very informative presentation about the importance of broadband connectivity for military purposes, including for troop communications with families. And in fact, the new National Broadband Plan includes an initiative to increase broadband access at military installations, which could include using satellite and undersea cable capabilities.

Satellites for Disaster Relief – or "Satellites to the Rescue." Satellites have proven to be incredibly valuable for disaster relief and emergency communications. In fact, the Satellite Industry Association (SIA) has coined the term, "Satellites to the Rescue." I can tell you that I have seen satellites to the rescue first hand – all over the world, and most recently, in Haiti.

The FCC has provided a great deal of assistance to Haiti, both in support of USAID and through our own "regulator-to-regulator" agreement with Conseil National des Télécommunications (Conatel), the telecommunications authority there. After the FCC first contacted the Director General of Conatel to offer our assistance, staff from the International Bureau and the Public Safety and Homeland Security Bureau immediately became involved in rescue and recovery efforts.

The FCC worked around-the-clock with the USAID-led U.S.Government Haiti Telecommunications Task Force, as well as with industry, to identify communications needs and

possible resources available to meet those needs. We coordinated with the Inter-American Telecommunication Commission (CITEL), the International Telecommunication Union (ITU), and non-governmental organizations. As you all are very well aware, shortly after the earthquake, utilization of satellite facilities in Haiti skyrocketed. As an example, one mobile satellite company indicated an 18,000 percent increase in utilization within the first month following the earthquake. This resulted in the FCC authorizing additional frequencies to the carrier to limit potential call blocking.

I know that several MSS providers provided equipment and services to numerous government agencies, including the Federal Emergency Management Agency, the Department of State, the U.S. Coast Guard and others. Your equipment and services were vital to the rescue efforts in Haiti. In fact, we loaned one of the FCC's Mobile Satellite Service (MSS) phones to Mr. Montaigne Marcelin, the Director General of Conatel. I can tell you that that one phone made such a difference. We were able to keep in contact to gain critical information about the communications situation and immediate issues there in Haiti.

MSS companies provided terminals and services to all sorts of nongovernmental organizations, including Telecom Sans Frontieres which set up calling centers and Wi-Fi access "clouds" connected through MSS satellites. Fixed Satellite Service providers "came to the rescue" too, donating satellite capacity and access to teleport facilities in support of relief efforts, as well as providing Very Small Aperture Terminal services to Haiti's national bank. Satellite radio and TV companies offered satellite bandwidth for disaster communications.

Just 10 days after the disaster, I led a U.S. team to Haiti to conduct the first assessment of the state of the telecommunications infrastructure, including satellites. When there, we made a few observations related to satellites in particular:

- We noticed that most relief workers were communicating via satellite phones and terminals. It was their lifeline as the terrestrial wireless infrastructure was just not reliable at that time.
- We noted most of the wireless carriers and the wireline carrier, Telecom Haiti (TELECO), had satellite redundancy available for their backhaul services, at least in the form of facilities (although some did not have service agreements with a satellite company to carry their traffic).
- We observed that in areas where installation or repair of backhaul facilities could be difficult and time consuming, the utilization of VSAT facilities would allow for immediate establishment of connectivity into operational telecommunications systems.
- We determined that satellite capability should be available at the hub facilities of wireless operators, if not already available. This capability would provide a diverse redundant path should a loss of microwave facilities or submarine cable facilities occur.
- Finally, we observed that remote low population density areas could be provided service via satellite with wireless connectivity provided from a VSAT network or WiFi to the hub facility. This would be a relatively easy solution and extremely beneficial as the Government of Haiti develops population centers outside of the Port-au-Prince area – which it is planning to do according to its March 2010 Action Plan.

I will add that the FCC's work in Haiti continues. We've sent four missions to Haiti so far involving staff from several FCC Bureaus and Offices, and we are committed to Haiti for the longer-term. A fortunate take-away is that the lessons we learned in Hurricane Katrina have been applied to Haiti, and what we learned in Haiti could be applied to Chile – where the satellite industry's assistance of satellite phones was high-profile news. In fact, it was the first request made to us at the FCC by our counterpart government agency in Chile.

Future Areas of Focus – Near-Term and Long-Term

Near-Term Focus: Now that the World Radiocommunication Conference (WRC)-12 is looming, we'll be working to ensure that implementation of previous WRCs is completed.

We'll be issuing a *17/24 GHz Space Path Interference Report and Order* that resolves potential interference issues between reverse band BSS space stations and DBS space stations operating in the same frequency band. This order will be the first of two orders that will address potential interference between reverse band BSS and DBS systems – as there will be a companion order addressing earth path interference. We hope to be issuing a joint Office of Engineering and Technology, International Bureau, and Wireless Telecommunications Bureau *Satellite Digital Radio Service Report and Order* that addresses Satellite Digital Audio Radio Service repeater and Wireless Communications Service mobile issues. We're planning on addressing issues raised by MSS on airplanes in the Ku-band, similar to Earth Stations on Vessels and Vehicle Mounted Earth Stations, in an *Aeronautical Mobile Satellite Service Rulemaking*.

To implement some of the recommendations in the National Broadband Plan, the Commission will start one or more rulemaking proceedings to consider proposals to optimize license flexibility sufficient to increase terrestrial broadband use of MSS spectrum, while preserving market-wide capability to provide unique mission-critical MSS services. One of those proposals will be to consider revisions to the ATC rules to make MSS spectrum better suited for broadband provision.

In addition to these proceedings, the Bureau is leading the Commission's international outreach efforts regarding the National Broadband Plan, and sharing best practices with respect to national plans around the globe designed to improve access to broadband services. For example, in late March, Chairman Genachowski, with the FCC Broadband Team, hosted the first "On-line Global Policy Meeting," with over 150 representatives from over 25 countries – via the Internet. Be assured that many of our attendees used satellite communications to participate in the meeting. The International Bureau will be contributing its expertise on international developments and perspectives to this monumental effort.

Long-Term Focus: Our long-term focus is on extending broadband access, with the goal of universal availability. We see broadband as one of our most significant infrastructure opportunities for the 21st century. Broadband is essential to job creation in a digital economy, to ongoing investment in vital infrastructure, and to our ability to innovate. Broadband is also essential to solving so many of the challenges facing us – including education, health care, energy and public safety.

And it won't just be one technology that helps us achieve our broadband goals – there is indeed a role for the satellite industry in bringing broadband to all areas of the United States, as well as globally. As I mentioned earlier, satellite operators are already providing broadband

Internet access. Satellite technology is particularly well suited for such services, particularly in rural areas, and for mobile applications.

We also look forward to modernizing our satellite procedures to adapt to the 21st century realities rather than 20th century circumstances.

Conclusion

Let me conclude with a few thoughts. Satellites are a major and critical component of communications infrastructure and the U.S. satellite industry is a world leader. The FCC intends to continue maintaining policies that help to promote competition – thereby strengthening U.S. leadership in the world satellite industry.

I want to hear your suggestions. We have heard already from some of you on how the FCC can improve its processes to make them more competitive with counterpart agencies around the world.

I appreciate the invitation and thank you for giving me the opportunity to speak to you today.